

Site Address

Permit Number

An installation certificate is required to be posted at the building site or made available for all appropriate inspections. (The information provided on this form is required; however, use of this form to provide the information is optional.) After completion of final inspection, a copy must be provided to the building department (upon request) and the building owner at occupancy, per Section 10-103(b).

HVAC SYSTEMS:**Heating Equipment**

Equip. Type (pkg. heat pump)	CEC Certified Mfr Name and Model Number	# of Identical Systems	Efficiency (AFUE, etc.) ¹ [≥CF-1R value]	Duct Location (attic, etc.)	Duct or Piping R-value	Heating Load (Btu/hr)	Heating Capacity (Btu/hr)

Cooling Equipment

Equip. Type (pkg. heat pump)	CEC Certified Compressor Unit Mfr Name and Model Number	# of Identical Systems	Efficiency (SEER, etc.) ¹ [≥CF-1R value]	Duct Location (attic, etc.)	Duct R-value	Cooling Load (Btu/hr)	Cooling Capacity (Btu/hr)

1. ≥ reads *greater than or equal to*.

I, the undersigned, verify that equipment listed above is: 1) is the actual equipment installed, 2) equivalent to or more efficient than that specified in the certificate of compliance (Form CF-1R) submitted for compliance with the *Energy Efficiency Standards* for residential buildings, and 3) equipment that meets or exceeds the appropriate requirements for manufactured devices (from the *Appliance Efficiency Regulations* or Part 6), where applicable.

Signature, Date

Installing Subcontractor (Co. Name)

OR General Contractor (Co. Name) OR Owner

WATER HEATING SYSTEMS:

Heater Type	CEC Certified Mfr Name & Model Number	Distribution Type (Std. Point-of-Use)	If Recir- culation, Control Type	# of Identical Systems	Rated ² Input (kW or Btu/hr)	Tank Volume (gallons)	Effi- ciency ² (EF, RE)	Standby ² Loss (%)	External Insulation R-value ³

2 For **small gas storage** (rated input of less than or equal to 75,000 Btu/hr), **electric resistance** and **heat pump water heaters**, list Energy Factor.

For **large gas storage water heaters** (rated input of greater than 75,000 Btu/hr), list Recovery Efficiency, Standby Loss and Rated Input.

For **instantaneous gas water heaters**, list Recovery Efficiency and Rated Input.

3. R-12 external insulation is mandatory for storage water heaters with an energy factor of less than 0.58.

Faucets & Shower Heads:

All faucets and showerheads installed are certified to the Commission, pursuant to Title 24, Part 6, Section 111.

I, the undersigned, verify that equipment listed above my signature is: 1) the actual equipment installed; 2) equivalent to or more efficient than that specified in the certificate of compliance (Form CF-1R) submitted for compliance with the *Energy Efficiency Standards* for residential buildings; and 3) equipment that meets or exceeds the appropriate requirements for manufactured devices (from the *Appliance Efficiency Regulations* or Part 6), where applicable.

Signature, Date

Installing Subcontractor (Co. Name) OR

General Contractor (Co. Name) OR Owner

COPY TO: Building Department
HERS Provider (if applicable)
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FENESTRATION/GLAZING:

Manufacturer/Brand Name (GROUP LIKE PRODUCTS)	Product U-Value ¹ (\leq CF-1R value) ²	Product SHGC ¹ (\leq CF-1R value) ²	# of Panels	Total Quantity of Like Product (Optional)	Square Feet	Interior or Exterior Shading Device or Overhang	Comments/Location/ Special Features
1. _____	_____	_____	_____	_____	_____	_____	_____
2. _____	_____	_____	_____	_____	_____	_____	_____
3. _____	_____	_____	_____	_____	_____	_____	_____
4. _____	_____	_____	_____	_____	_____	_____	_____
5. _____	_____	_____	_____	_____	_____	_____	_____
6. _____	_____	_____	_____	_____	_____	_____	_____
7. _____	_____	_____	_____	_____	_____	_____	_____
8. _____	_____	_____	_____	_____	_____	_____	_____
9. _____	_____	_____	_____	_____	_____	_____	_____
10. _____	_____	_____	_____	_____	_____	_____	_____
11. _____	_____	_____	_____	_____	_____	_____	_____
12. _____	_____	_____	_____	_____	_____	_____	_____
13. _____	_____	_____	_____	_____	_____	_____	_____
14. _____	_____	_____	_____	_____	_____	_____	_____
15. _____	_____	_____	_____	_____	_____	_____	_____

¹ Manufactured fenestration products use the values from the product label. Field fabricated fenestration products use the default values from Section 116 of the Energy Efficiency Standards.

² Installed U-value must be less than or equal to values from CF-1R. Installed SHGC must be less than or equal to values from CF-1R, or a shading device (interior, exterior or overhang) is installed as specified on the CF-1R. Alternatively, installed weighted average U-values for the total fenestration area are less than or equal to values from CF-1R.

I, the undersigned, verify that the fenestration/glazing listed above my signature: 1) is the actual fenestration product installed; 2) is equivalent to or has a lower U-Value and lower SHGC than that specified in the certificate of compliance (Form CF-1R) submitted for compliance with the *Energy Efficiency Standards* for residential buildings; and 3) the product meets or exceeds the appropriate requirements for manufactured devices (from Part 6), where applicable.

Item #s (if applicable)	Signature, Date	Installing Subcontractor (Co. Name) OR General Contractor (Co. Name) OR Owner OR Window Distributor
Item #s (if applicable)	Signature, Date	Installing Subcontractor (Co. Name) OR General Contractor (Co. Name) OR Owner OR Window Distributor
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COPY TO: Building Department
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DUCT DIAGNOSTICS

This building obtained compliance credit for:

☐ Duct sealing ☐ Duct Area Reduction

☐ ACCA Manual D design and installation

CREDIT FOR REDUCED DUCT SURFACE AREA OR LOCATION

Duct Location*	Exterior Surface Area (Cf-1R)	Measured Exterior Surface Area
<input type="checkbox"/> Attic		
<input type="checkbox"/> Crawlspace		
<input type="checkbox"/> Basement		
<input type="checkbox"/> Other _____		

*Ignore ducts in conditioned space. Only a check is required for location credit.

ACCA Design

- ☐ Duct Design on Plans
- ☐ Installed duct diameters match plans
- ☐ TXV installed
- ☐ Access to TXV valve (if installed)
- ☐ No TXV, Fan air flow (CFM) _____

Duct Sealing

- ☐ Duct Leakage Measured
- ☐ Measured leakage (CFM) _____
- HVAC Fan air flow (CFM) _____ (measured or calculated as
- ☐ $CFM = 0.7 \times A_{\text{floor}}$ for CZ 8 through 15
- ☐ $CFM = 0.5 \times A_{\text{floor}}$ for CZ 1 through 7 & 16
- or, if the equipment size is known, the larger of 1 or 2.
1. ☐ $CFM = 400 \times \text{Cooling Capacity in Tons}$ or
2. ☐ $CFM = 21.7 \times \text{Heating Capacity in Thousands of Btu per hour}$
- Leakage divided by HVAC Fan air flow _____ (must be ≤ 0.06)

For AEROSOL TYPE SEALANTS ONLY - The following diagnostic testing was completed:

- ☐ Duct Fan Pressurization at rough-in measured leakage CFM) _____ CHECK AFTER FINISHING WALL::
- ☐ Pressure pan test ☐ House pressurization test ☐ Visual Inspection of Duct Connections
- Provide Follow-up Test Results or Inspection Results on a Separate Page

- ☐ This certifies that the duct surface area and duct locations were verified.

When compliance credit is claimed for duct surface area reductions and duct location improvements beyond those covered by default assumptions, builder employees or subcontractors shall certify that they have verified that the duct surface area and locations match those on the plans and shall indicate the duct surface area in each duct location on the CF-6R.

- ☐ This is to certify that the above diagnostic test results and the work I performed associated with the test(s) is in conformance with the requirements for compliance credit. [The builder shall provide the HERS provider a copy of the CF-6R signed by the builder employees or sub-contractors certifying that diagnostic testing and installation meet the requirements for compliance credit.]

Tests

Performed

COPY TO:

Building Department
HERS Provider (if applicable)
Building Owner at Occupancy

Signature, Date

Installing Subcontractor (Co. Name) OR
General Contractor (Co. Name)

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BUILDING ENVELOPE LEAKAGE DIAGNOSTICS

This building obtained compliance credit for: ☐ Envelope sealing using diagnostic testing (CF-1R)

Diagnostic Testing Results

	Needed for Compliance (from CF-1R)	Measured Blowerdoor Test Results
Building Envelope Leakage (CFM @ 50 Pa)		
Leakage level equivalent to an SLA of 3.0 from CF-1R		
Minimum Building Leakage equivalent to an SLA of 1.5 from CF-1R (CFM @ 50 Pa)		
<input type="checkbox"/> Yes <input type="checkbox"/> No Is design leakage less than the SLA 3.0 equivalent (from CF-1R)?		
<input type="checkbox"/> Yes <input type="checkbox"/> No Is mechanical ventilation installed? (Required if design is less than 3.0 SLA)		
<input type="checkbox"/> Yes <input type="checkbox"/> No Is measured leakage (without fans operating) less than minimum in the above Table (1.5 SLA from CF-1R)?		
<input type="checkbox"/> Yes <input type="checkbox"/> No Is mechanical supply ventilation installed to assure house pressure does not go below minus 5 Pascal relative to outside ambient with all exhaust fans operating?		

Mechanical Ventilation – Fill in Table if mechanical ventilation is installed

	Used for Compliance (from CF-1R)	Measured Actual
Continuous Mechanical Ventilation (CFM) ¹		
Continuous Mechanical Supply Ventilation (CFM) Required to maintain -5 Pa if building envelope leakage is less than minimum (see above)		
Total Power Consumption of Continuous Mechanical Ventilation (Watts) ²		

- ☐ This certifies that the building envelope leakage was verified.
When compliance credit is claimed for building leakage reduction below default assumptions, builder employees or subcontractors shall certify that they have verified that the building leakage level matches that used for compliance on the CF-1R and shall document the leakage levels required for compliance and the tested infiltration values on the CF-6R.
- ☐ This is to certify that the above diagnostic test results and the work I performed associated with the test(s) is in conformance with the requirements for compliance credit. [The builder shall provide the HERS provider a copy of the CF-6R signed by the builder employees or sub-contractors certifying that diagnostic testing and installation meet the requirements for compliance credit.]

Test Performed	Signature	Date	Testing Subcontractor (Co. Name) OR General Contractor (Co. Name)
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COPY TO: Building Department
HERS Provider (if applicable)

¹ When mechanical ventilation is required, CFM less than 0.047 CFM per square foot of conditioned floor area indicates failure to achieve compliance.

² As determined from label on fan or manufacturers literature.

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The following is an explanation of many of the input values required on this form:

HVAC SYSTEMS

Heating Equipment Type must be one of the following:

Furnace:	Gas (including Liquefied Petroleum Gases) or oil-fired central furnace & space heater
Boiler:	Gas or oil-fired boiler
PckgHeatPump:	Packaged central heat pump
SplitHeatPump:	Split central heat pump
RoomHeatPump:	Room heat pump
LgPkgHeatPump:	Large packaged heat pump ($\geq 65,000$ Btu/hr output)
Electric:	Electric resistance heating (fixed HSPF = 3.413); radiant electric resistance (fixed HSPF = 3.55)
CombinedHydro:	Reference water heater under water heating systems below

CEC Certified Manufacturer Name & Model Number from applicable Commission approved appliance directory.

of Identical Systems is for those systems with the same efficiency, duct location, duct R-value and capacity.

Efficiency from applicable Commission certified appliance directory.

Duct (or Piping) Location is attic, crawl space, CVC crawl space, conditioned space, unconditioned space or none.

Duct (or Piping) R-Value from Directory of Certified Insulation Materials and/or manufacturer's data.

Heating/Cooling Load refer to Commission approved load calculation procedure.

Heating/Cooling Capacity from the applicable Commission certified appliance directory. Note: location elevations over 2,000 ft above sea level require a derating of output capacity (refer to manufacturer's literature).

Cooling Equipment Type must be one of the following:

SplitAirCond:	Split system air conditioner
PckgAirCond:	Packaged air conditioner
Split Heat Pump:	Split system heat pump
PckgHeatPump:	Packaged heat pump
RoomHeatPump:	Room heat pump
LgPkgHeatPump:	Large packaged heat pump ($\geq 65,000$ Btu/hr output). Substitute EER for SEER when SEER is not available
RoomAirCond:	Room air conditioner. Minimum SEER varies*
LgPkgAirCond:	Large packaged air conditioner ($\geq 65,000$ Btu/hr output). Substitute EER for SEER when SEER is not available
EvapDirect:	Direct evaporative cooling system. For compliance calculation purposes, fixed values: SEER = 11.0; duct location = attic; duct insulation R-value = 4.2
EvapIndirect:	Indirect evaporative cooling system. For compliance calculation purposes, fixed values: SEER = 13.0; duct location = attic; duct insulation R-value = 4.2

*Refer to Energy Commission publication *Appliance Efficiency Regulations*, P400-92-029

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The following is an explanation of many of the input values required on this form:

WATER HEATING SYSTEMS

Distribution Systems Refer to *Residential Manual* for more details:

Standard:	Standard – Supply pressure based system, no pumps
Pipe Insulation:	Pipe Insulation on all 3/4-inch pipes
POU/HWR:	Point of Use/Hot Water Recovery System
Recirc/NoControl:	Recirculation loop with no controls
Recirc/Timer:	Recirculation loop with a timer
Recirc/Temp:	Recirculation loop with temperature control
Recirc/Time+Temp:	Recirculation loop with a timer and temperature control
Recirc/Demand:	Recirculation loop with demand control

Water Heater Type

	Information Needed			
	<u>Energy Factor</u>	<u>Recovery Efficiency</u>	<u>Standby Loss</u>	<u>Rated Input</u>
Storage Gas, Oil or Electric	Yes	No	No	No
Heat Pump	Yes	No	No	No
Instantaneous Gas	No	Yes	No	No
Instantaneous Electric	Yes	No	No	No
Large Storage Gas	No	Yes	Yes	Yes
Indirect Gas (Boiler)	No	Yes (AFUE)	No	Yes

FENESTRATION/GLAZING

Fenestration:	Windows, sliding glass doors, French doors, skylights, garden windows, and any door with more than one square foot of glass
Operator Type:	Slider, hinged, fixed
U-Value:	<p>Installed U-value must be less than or equal to value from CF-1R</p> <p>OR</p> <p>Installed weighted average U-value for the total fenestration area is less than or equal to value from CF-1R</p>
SHGC:	<p>Installed SHGC must be less than or equal to value from CF-1R</p> <p>OR</p> <p>Installed weighted SHGC for the total fenestration area is less than or equal to value from CF-1R</p> <p>OR</p> <p>An interior shading device, overhang, or exterior shading device is installed consistent with the CF-1R</p>
Shading Device:	Include when the building complied using an <i>interior</i> shading device: blinds, opaque roller shades, blinds (do not list draperies), an <i>exterior</i> shading device: woven sunscreen, louvered sunscreen, low sun angle sunscreen, roll-down awning, roll-down blinds or slats (do not list bug screen), or an overhang (include depth in feet)

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The following is an explanation of many of the input values required on the Diagnostic portion of this form (page 3 of 6):

TYPE OF CREDIT

Refer to *Residential Manual* Chapters 4 and 5 for more details:

Reduced Duct Surface Area:	Calculated as the outside area of the duct. Areas must be measured and verified by a HERS rater.
Improved Duct Location:	Supply duct located in other than attic, as verified by location of registers (does not require HERS rater verification).
Catastrophic Leakage:	Pressure pan test readings must be less than 1.5 Pascal at a house pressure of 25 Pascal.
TXV:	Access cover required to facilitate verification.
Infiltration Reduction:	Infiltration is measured without mechanical ventilation operating. Mechanical ventilation is required for very tight house construction when credits for infiltration reduction using diagnostic testing are being used for achieving compliance. These very tight houses are defined as those with SLA of less than 1.5. The compliance documentation (CF-1R) will contain the measured CFM target value from a blower door test at 50 Pascal pressure difference that represents this SLA of 1.5. Mechanical ventilation is also required if the builder chooses to design the building to use mechanical ventilation and claims a credit for infiltration below an SLA of 3.0. The compliance documentation (CF-1R) will contain the measured CFM target value that represents this 3.0 SLA. If the builder claims credit in a design for infiltration reduction that is at an SLA of 3.0 or higher, and the actual measured SLA is 1.5 or greater, then mechanical ventilation is not required. If the SLA in this case were below 1.5, then mitigation (such as mechanical ventilation) would be required.